PASADENA WATER AND POWER

October 11, 2016

California Energy Commission
EPS Compliance
1516 Ninth Street
Sacramento, CA 95814-512
Attention: Compliance Filing

Re: Pasadena Emission Performance Standard Compliance Filing for the Intermountain Power Project ("IPP") Repowering Project

Dear Sir or Madam:

Summary

The City of Pasadena hereby submits the attached Compliance Filing package, seeking California Energy Commission ("CEC") approval of the Compliance Filing for the IPP Repowering as required by Senate Bill ("SB") 1368. The Intermountain Power Agency ("IPA") holds legal title to the Intermountain Power Project ("IPP"), which includes two 900 MW (net) coal generating units located near Delta, Utah. The Los Angeles Department of Water and Power ("LADWP") is IPA's Project Manager and Operating Agent for IPP. The City of Pasadena, along with LADWP and other municipal and cooperative entities ("Purchasers"), buy IPP's energy.

IPA and the Purchasers are now pursuing the IPP Repowering Project ("Project"), which is scheduled to replace IPP's coal generating units with CEC SB 1368 Emission Performance Standards ("EPS") compliant natural gas combined cycle ("NGCC") generating units. The target date to replace the coal units is July 1, 2025, two years ahead of the June 15, 2027 expiration date of the current Power Sales Contracts between IPA and the Purchasers. However, the ability to meet this earlier date is contingent upon several factors, including permitting, material procurement and final concurrence of all 35 participants. Although the participants are planning to complete the repowering project by 2025, the commercial operation date may be delayed due to circumstances beyond Pasadena's control.

This repowering will result in the City of Pasadena's complete divestiture of all coal based fuel in its portfolio of generation resources. If this Compliance Filing is not approved by the CEC, the IPP Repowering Project will not proceed, and the existing IPP coal generating units will continue to generate energy until June 15, 2027, and potentially beyond.

The IPP Repowering Project is uniquely complex because of the number and geographical diversity of the Purchasers and the multiple contracts governing the scope and schedule of the Project. The goal is to build NGCC generating units that can meet the changing demands of utilities in both California and Utah and the changing generation requirements necessary for the successful integration of renewable variable energy resources.

Background

IPA, a political subdivision of the State of Utah, began construction of IPP in October 1981, with commercial operation of Unit 1 commencing in June, 1986 and of Unit 2 in May, 1987. Each Purchaser's share of IPP's generation was established by a Power Sales Contract, as entered into between IPA and the Purchasers. The Purchasers include 23 Utah municipalities, six rural electric cooperatives, and six California municipalities as follows:

UTAH MUNICIPAL PURCHASERS:	**UTAH COOPERATIVE PURCHASERS:**	**CALIFORNIA PURCHASERS:**
Beaver	Bridger Valley REA	Anaheim
Bountiful	Dixie-Escalante REA	Burbank
Enterprise	Flowell Electric Assoc.	Glendale
Ephraim	Garkane Power Assoc.	LADWP
Fairview	Moon Lake Elec. Assoc.	Pasadena
Fillmore	Mt. Wheeler Power, Inc.	Riverside
Heber		
Holden		
Hurricane		
Hyrum		
Kanosh		
Kaysville		
Lehi		
Logan		
Meadow		
Monroe		
Morgan		
Mt. Pleasant		
Murray		
Oak City		
Parowan		
Price		
Spring City		

Although the Power Sales Contracts will expire on June 15, 2027, those contracts require IPA to offer the Purchasers the right to continue participating in an IPP repowering beyond that date by entering into the Renewal Power Sales Contracts and the Agreement for Sale of Renewal Excess Power ("Renewal Contracts").

After entering into the Renewal Contracts, all California Purchasers, except LADWP, have the right to terminate the contracts or to reduce their Generation Entitlement Share no later than November 1, 2019. Once they become effective under their terms, the Second Amendatory Power Sales Contract and the Renewal Contracts constitute binding obligations (Section 20.1 of each agreement), regardless of any termination right (Second Amendatory Power Sales Contract Section 42.1).

Description of the IPP Repowering Project

Given IPA's obligation to offer the Purchasers a right to participate in an IPP repowering after the expiration of the current Power Sales Contracts, IPA and the Purchasers are now pursuing entering into Renewal Contracts, which would allow for energy procurement from the NGCC generating units. IPA, with LADWP as Project Manager, is thus undertaking a natural gas repowering, defined in the Second Amendatory Power Sales Contract as the construction and installation of two NGCC power blocks, each with a design capacity of 600 MW.

Based on the generation power blocks currently available on the market, there are three (3) options for this generation output and generation type, as summarized in the attached Project Description.

Purchasers who choose to enter into the Renewal Contracts must obtain all Regulatory Contract Approvals, defined in the Renewal Power Sales Contracts as "all governmental regulatory approvals, consents and authorizations required or necessary" for the Purchaser to execute, perform under and be bound by the Renewal Power Sales Contract. If any Regulatory Contract Approval is denied a Purchaser, including one by the CEC, the Renewal Power Sales Contract for that Purchaser will be void.

Compliance Filing:

Pursuant to 20 CCR § 2900 *et seq.*, of the California Code of Regulations, adopted by the CEC to implement Senate Bill 1368, the City of Pasadena hereby submits the attached Compliance Filing. In submitting this filing, the City of Pasadena respectfully requests that the CEC determine that the IPP Repowering Project pursuant to the Second Amendatory Power Sales Contract is in compliance with the EPS regulations promulgated by the CEC.

The City of Pasadena is subject to the EPS Regulations for the following reasons:

- Pasadena Water and Power, a department of the City of Pasadena, is a local publicly owned electric utility as defined in Public Utilities Code Section 9604.

- The proposed 1,200 MW Intermountain Power Renewal Project will involve a powerplant larger than 10 MW subject to the EPS Regulations, §2900 (Provisions Applicable to Powerplants 10 MW and Larger).
- The proposed Intermountain Power Renewal Project is expected to be baseload generation, designed and intended to provide electricity at an annualized plant capacity factor greater than 60 percent.
- The fifty-year Renewal Power Sales Contract with the Intermountain Power Agency is a covered procurement because it is a new contract commitment for the procurement of electricity with a term of five years or greater under a multiparty agreement that will include several local publicly owned electric utilities, including the City of Pasadena, with a baseload generation powerplant that is not "deemed" compliant.
    - The IPP Renewal Project will be a combined cycle natural gas powerplant, but was not in operation or granted a certificate by the Commission pursuant to Chapter 6 of the Warren-Alquist State Energy Resources Conservation and Development Act on or before June 30, 2007.
    - The IPP Renewal Project will not be a renewable electricity generation facility as defined in Chapter 8.6 of Division 15 of the Public Resources Code and as specified by guidelines adopted thereunder.
    - The IPP Renewal Project will not utilize biomass fuels that would otherwise be disposed of utilizing open burning, forest accumulation, spreading, composting, uncontrolled landfill, or landfill utilizing gas collection with flare or engine. Biomass includes but is not limited to agricultural waste, wood waste, and landfill gas.
    - The IPP Renewal Project will be neither a hydroelectric nor nuclear powerplant.

On July 20, 2015, the Pasadena City Council, at a noticed public meeting consistent with the requirements of the Ralph M. Brown Act ("Brown Act" Cal. Govt. Code § 54950 *et seq.*) approved and authorized the execution and delivery of the Second Amendatory Power Sales Contract, which allows the repowering of IPP's coal-fired generating units with EPS-compliant NGCC units by July 2025, accelerating the coal divestiture date by two years, assuming Renewal Power Sales Contracts are thereafter in place. The Second Amendatory Power Sales Contract ultimately went into effect on March 16, 2016. At the same July 20, 2015 meeting, the City Council approved and authorized the execution and delivery of the Renewal Contracts which provide for the procurement of electricity from the Project until 2077, consistent with 20 CCR § 2908.

The CEC Compliance Filing/Project Description is provided as Attachment A. Attachment B is the attestation required by 20 CCR § 2909.

If the CEC has any questions or requests additional information regarding this coal divestiture and repowering with NGCC units, please contact the following representative of the City of Pasadena, Department of Water and Power: Badia Harrell, (626) 744-7418, BHarrell@CityofPasadena.net

Sincerely,

Gurcharan Bawa
Interim General Manager
Pasadena Water and Power

Attachments

Attachment A

CALIFORNIA ENERGY COMMISSION
EMISSION PERFORMANCE STANDARD COMPLIANCE FILING

DESCRIPTION OF IPP REPOWERING PROJECT

Name of Facility: Intermountain Power Project

Location of Facility: 850 W Brush Wellman Road, Delta Utah 84624

Proposed Technology/Fuel: Natural Gas-Fired Combined Cycle Generating Facility

Planned Commercial Operation Date: July 1, 2025*
* The ability to meet this date is contingent upon several factors, including permitting, material procurement and final concurrence of all participants. The commercial operation date may be delayed due to circumstances beyond Pasadena's control.

Generation Configuration Options:

Since the Siemens and the Mitsubishi configurations exceed 600 MW each, they will be derated to 600 MW in order to meet the limitations defined by the project of a total maximum 1200 MW output. Duct firing is required for the GE units in order to reach a rated output of 600 MW at site. Preliminary Rated Capacity, and CO_2 emission data were received from each respective vendor for the IPP Repowering Project at site conditions of: 51 °F, 60% RH, and an elevation of 4760 ft.

Prime Mover	2+1 Combined Cycle	2+1 Combined Cycle	2+1 Combined Cycle
Quantity	2	2	2
Manufacturer	GE	Siemens	Mitsubishi
Model	7F.04	SCC6-5000F	M501GAC
Rated Capacity (MW), at IPP Site	600 each, 1200 total, with duct firing	616 each, 1232 total	714 each, 1428 total
Capacity after Derate	Not applicable	600 each, 1200 total	600 each, 1200 total
Fuel Used	Natural Gas	Natural Gas	Natural Gas
EPS Compliant	Yes	Yes	Yes
Expected Operating Profile	See Figure 3	See Figure 3	See Figure 3
Expected energy output (MWh)	See Figure 3	See Figure 3	See Figure 3
Expected fuel use profile	See Figure 4	See Figure 5	See Figure 6
Estimated CO_2 emissions for site conditions, (lbs/MWh)	744, with duct firing	759	768
Estimated CO_2 emissions after derate	Not applicable	761	777

Figure 1 - Generation Configuration Options.

Power Purchase Contract Terms

Name of Counter Party: Intermountain Power Agency (IPA)-
Length of Contract: 52 years

Duration: July 1, 2025 – June 15, 2077

Product: Energy (MWh)

Capacity for Project: 1200 MW[1]

Capacity for Participants: Below in Figure 2, is the current generation entitlement for each Participant of the current Power Sales Contracts. The final percentage share for each Participant for the Renewal Power Sales Contract will be determined based on many factors, including prior participation rates, number of final participants, and available percentages without commitment, among others.

CALIFORNIA PURCHASERS				
PURCHASER	SHARE TO BE DELIVERED	W/ EXCESS ENTITLMENT SHARES (2015-12-18)	SHARE OF 1200 MW	SHARE OF 1200 MW PLUS ENTITLEMENT SHARES
Anaheim	13.225%	13.225%	159	159
Burbank	3.371%	4.167%	40	50
Glendale	1.704%	2.206%	20	26
LADWP	48.617%	66.785%	583	801
Pasadena	4.409%	6.000%	53	72
Riverside	7.617%	7.617%	91	91
GROUP TOTAL	78.943%	100.000%	947	1200
UTAH COOPERATIVE PURCHASERS				
GROUP TOTAL	7.017%	0.000%	84	0
UTAH MUNICIPAL PURCHASERS				
GROUP TOTAL	14.040%	0.000%	168	0
PURCHASER TOTAL	100.000%	100.000%	1200	1200

Figure 2 - Generation Distribution[2]

Expected Deliverables: Please refer to Figure 2

Must Take Provisions: Please refer to Figure 2

Dispatch Provisions: It is assumed that LADWP will continue its responsibilities as the Operating Agent for the repowered IPP units, and will continue to be responsible for the dispatch of the IPP units based on Participant and system demand.

Unit Contingency: N/A

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[1] The Project size per the Second Amendatory Power Sales Contract is limited to 1200 MW. The Generation Scenarios listed above are based on the available generation sizes from the 3 respective vendors.

[2] This is based on the assumption that Participant's shares will be equal to its current Generation Entitlement Share in the existing Power Sales Contracts, and Excess Power Sales Contracts

Expected Operating Profiles:

A simulation of the load profile performed by LADWP staff is below in Figure 3 utilizing the GE configuration. The Siemens and Mitsubishi options will follow similar profiles as the heat rates and other characteristics are comparable, with higher plant energy outputs. The load profile was used to derive the average estimated energy output per year as shown below

Energy Output (MWh): 6,635,768

The average annual capacity factor for all manufacturers is 63%.

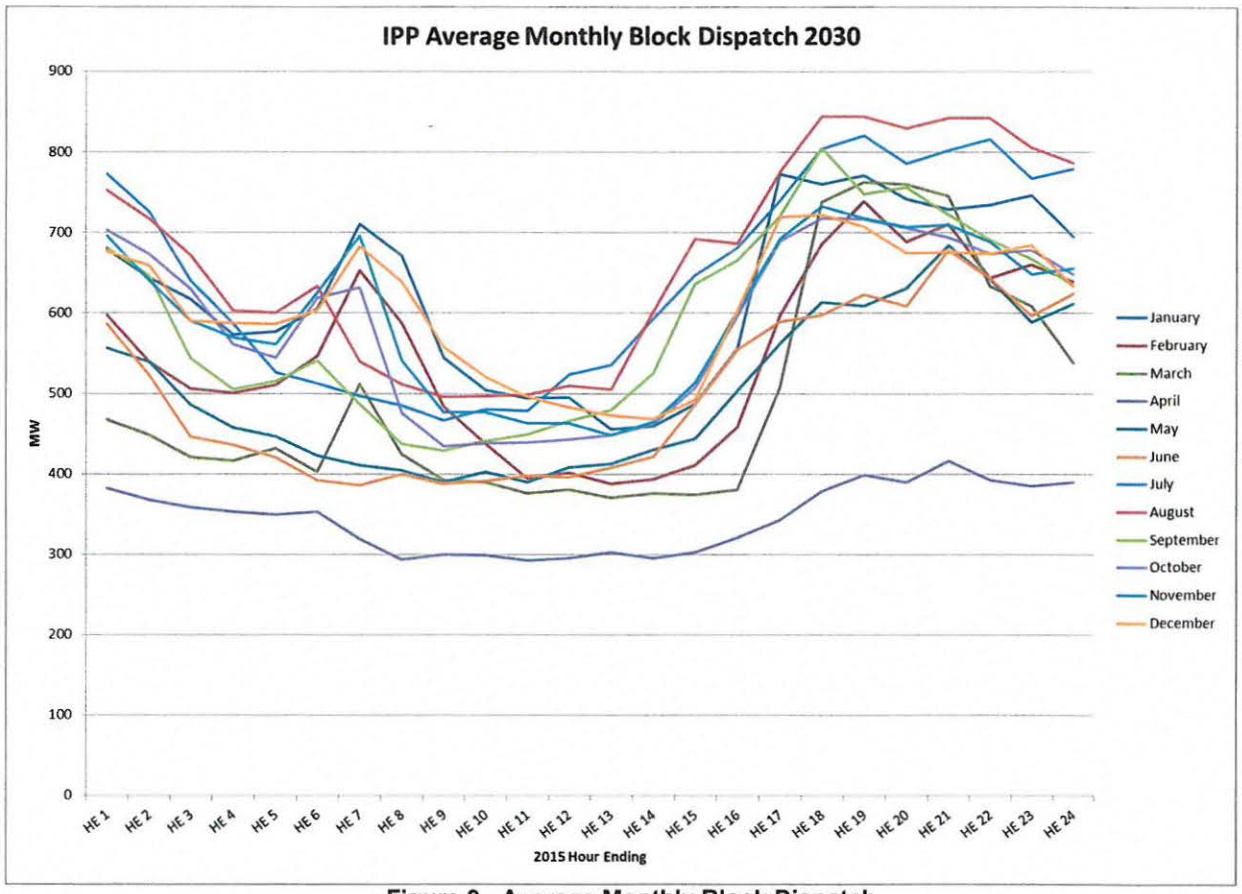

Figure 3 - Average Monthly Block Dispatch

Expected Fuel Use Profile:

Below is the preliminary fuel use data received from each respective vendor, estimated for the IPP site conditions.

GE - Estimated Combined Cycle Data for IPP Repowering

All data estimated for site conditions, with duct firing, cooling towers

2x1 7F.04

Ambient Temperature	°F	51	51	51	51	51	51	51
Duct Firing		On	On	Off	Off	Off	Off	Off
Load		100%	90%	85%	80%	70%	60%	50%
Net Plant Output	MW	600	540	508	480	420	360	300
Heat Input (LHV)	MMBTU/h	3,669	3,214	2,981	2,828	2,501	2,192	1,908
CO2 Emissions	lbs/MWh	780	759	748	751	759	776	811

Figure 4 - GE Fuel Use Profile

Siemens - Estimated Combined Cycle Data for IPP Repowering

All data estimated for site conditions, no duct firing, cooling towers

2x1 SCC6-5000F

Ambient Temperature	°F	51	51	51	51	51	51	51
Load		100%	90%	80%	70%	60%	50%	40%
Net Plant Output	MW	616	563	511	461	411	361	310
Heat Input (LHV)	MMBTU/h	3,619	3,342	3,093	2,864	2,646	2,430	2,203
CO2 Emissions	lbs/MWh	759	767	782	803	832	870	918

Figure 5 - Siemens Fuel Use Profile (received from vendors without derate)

Mitsubishi - Estimated Combined Cycle Data for IPP Repowering

All data estimated for site conditions, no duct firing, cooling towers

2x 1 M501GAC

Ambient Temperature	°F	105	105	95	95	47	47	12	12
Load		100%	55%	100%	55%	100%	55%	100%	50%
Net Plant Output	MW	595	351	616	360	714	401	765	427
Heat Input (LHV)	MMBTU/h	3,480	2,276	3,606	2,348	4,150	2,552	4,492	2,716
CO2 Emissions	lbs/MWh	768	850	770	854	764	836	772	834

Figure 6 - Mitsubishi Fuel Use Profile (received from vendors without derate)

Data from Existing Plant – Apex Generating Station

Below in Figure 7 is data extracted from LADWP's Apex Generating Station located in Clark County, Nevada for the calendar year of 2015. The plant consists of a GE MS7000FA 527 MW 2x1 Combined Cycle generating station. The energy output for the plant in 2015 was 2,635,293 MWh, with a resultant capacity factor of 57%.

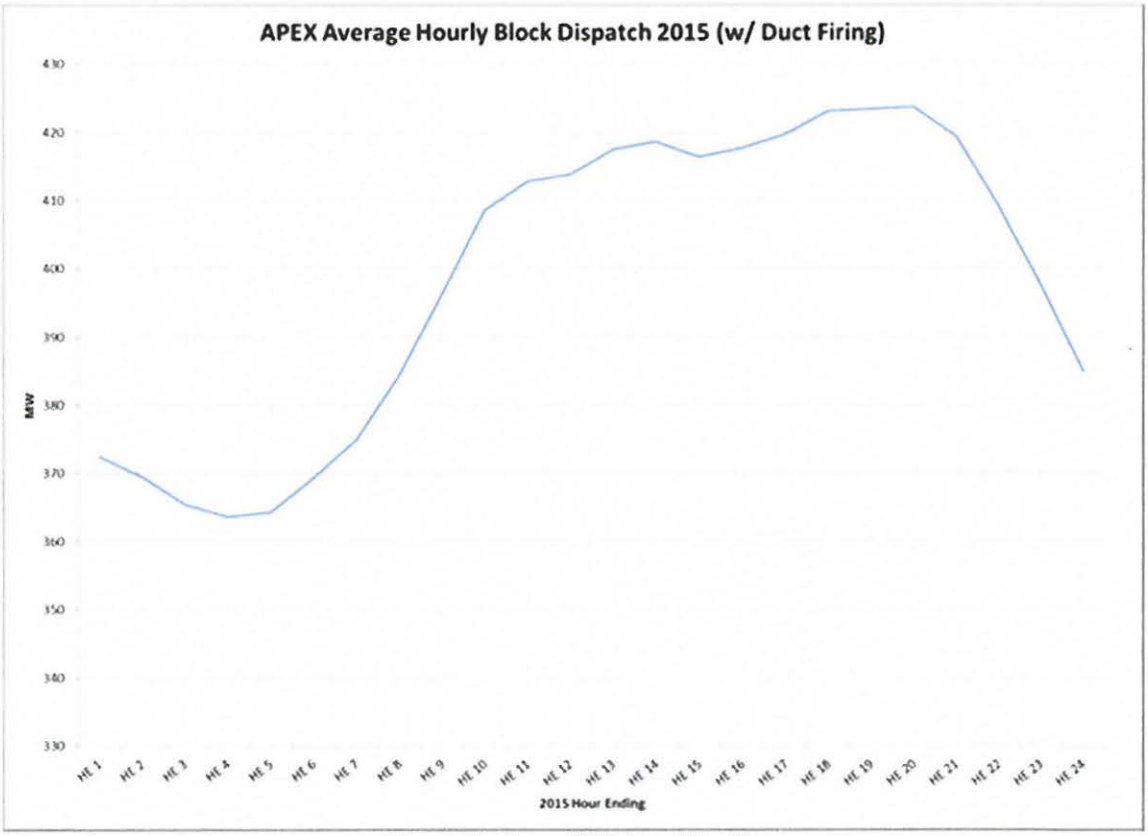

Figure 7 - Apex 2015 Load Profile

Apex - Data									
Load		100%	90%	80%	70%	60%	50%	40%	30%
Net Plant Output	MW	531	478	425	372	319	266	212	192
CO2 Emissions	lbs/MWh	884	835	841	856	886	939	1,031	1,084

Figure 8 - Apex 2015 Fuel Use Profile

ATTACHMENT B

CALIFORNIA ENERGY COMMISSION
EMISSION PERFORMANCE STANDARD COMPLIANCE FILING
ATTESTATION

I, the official named below, certify under penalty of perjury, the following:

1. I am an agent of the City of Pasadena authorized by its City Council to sign this attestation on its behalf;

2. The City Council has reviewed and approved in noticed public meetings both the covered procurement (on July 20, 2015) and the Compliance Filing (on October 10, 2016) to which this attestation is attached;

3. Based on the City Council's knowledge, information, and belief, the Compliance Filing does not contain a material misstatement or omission of fact;

4. Based on the City Council's knowledge, information, or belief, the covered procurement complies with Title 20, Division 2, Chapter 11, Article 1 of the California Code of Regulations; and

5. The covered procurement contains the contractual terms or conditions specifying that the contract or commitment is void and all energy deliveries shall be terminated no later than the effective date of any CEC decision pursuant to 20 CCR § 2910 that the covered procurement fails to comply with 20 CCR § 2900 *et seq.*

Executed this 11th day of October, 2016, at Pasadena, California.

GSBawa

GURCHARAN BAWA
Interim General Manager
Pasadena Water & Power